Aspect CONSULTING

PROJECT BENEFITS: *Surface Water Storage*

Twin Lakes Aquifer Coalition

Up to 800 acre-feet per year will be added to surface and groundwater storage during a 10-year period to restore lake levels. Water not returned to the Methow River or lost to evaporation will go to storage until up to 1,600 acre-feet of new storage is added to the lake and aquifer system. Four lakes and one depression that is currently dry (the Kettle) will be filled to restore historic water levels. Water level elevations under existing and proposed conditions are shown in Figure 1.

Project benefits to surface water bodies include:

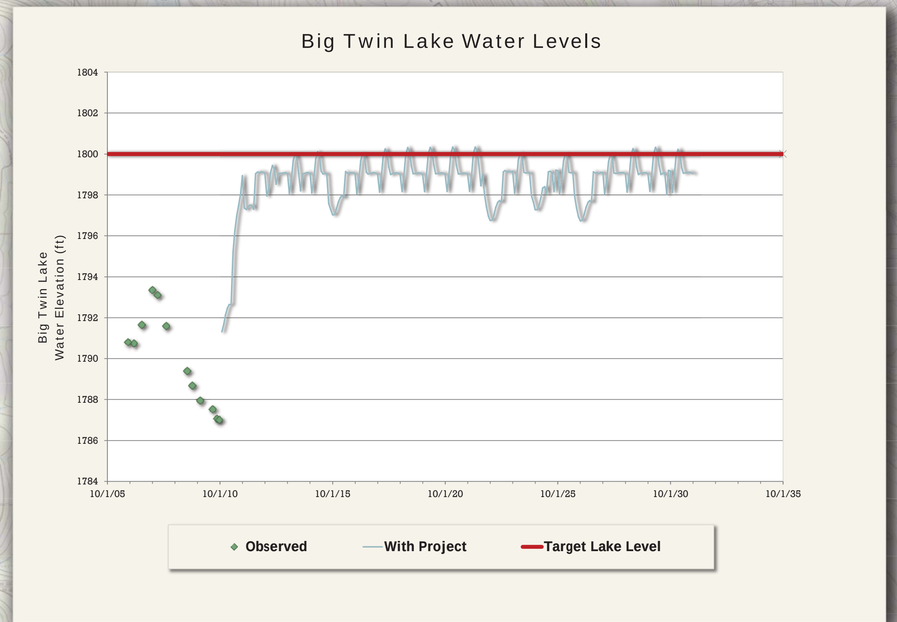
- **Restore** water levels in Big Twin, Little Twin, Barnsley and Dibble Lakes to historic levels.
- **Restore and maintain** recreational trout fishing in Big and Little Twin Lakes.
- **Restore and maintain** riparian habitat and lowland habitat for aquatic species and mammals that use Barnsley and Twin Lakes.
- **Reduce** annual water level fluctuations that currently cause a "reservoir effect" exposing shorelines and promoting growth of invasive reed canary grass.
- **Improve** instream flows in the Methow River by 0.5 cfs when Minimum Instream Flows are frequently not met.

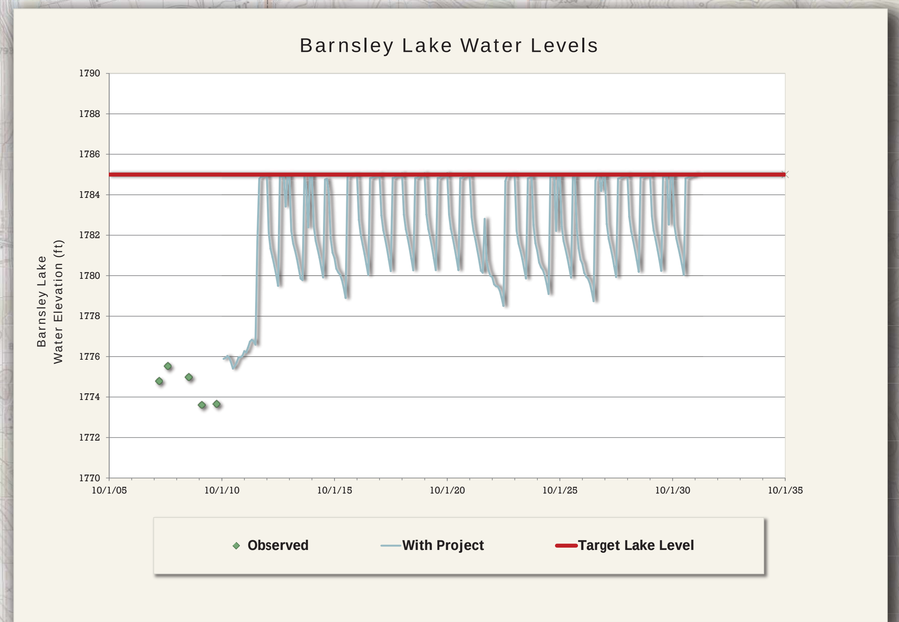
What is Hydraulic Continuity?

Water bodies that are physically connected are said to be in hydraulic continuity.

Lake	Existing Water Level Elevation (ft asl)	Proposed Maximum Water level Elevation (ft asl)	Existing Water Level Fluctuation (ft)	Proposed Water Level Fluctuation (ft)
Big Twin Lake	1,777 – 1,795	1800	18	1-2
Little Twin Lake	1,777 – 1,793	1800	16	1-2
Barnsley Lake	1,773 – 1,776	1785	3	5-7
Kettle Feature	Dry	1785	-	5-7
Dibble Lake	1,776 – 1,781	1783	5	1-2

FIGURE 1. Water level elevations under existing and proposed conditions
Maximum water levels were established in coordination with property owners potentially affected by increased water levels. The target water level for Big Twin Lake (1,799 ft) is one foot lower than the maximum (1,800 ft) to allow for an operational contingency to prevent overfilling during high runoff years.





Water levels will fluctuate 1-2 feet annually in Big Twin and Little Twin Lakes which are in close hydraulic continuity. Observed water level fluctuations since 2006 are up to 18 feet creating a "reservoir effect" that will be minimized with completion of the Project